UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/187,879	01/27/94	ROBINSON	[illegible]

EXAMINER	
HOGUE, C	
ART UNIT	**PAPER NUMBER**
1804	16

DATE MAILED: 08/06/96

18N2/0806

PATRICIA GRANAHAN
HAMILTON, BROOK, SMITH & REYNOLDS
TWO MILITIA DRIVE
LEXINGTON, MA 02173

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☑ Responsive to communication filed on 2/9/96 ☑ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☑ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☑ Claims 1-3, 5-7, 9-26, 28-38 and 40-56 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☑ Claims 4, 8, 27 and 39 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☑ Claims 1-3, 5-7, 9-26, 28-38 and 40-56 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☑ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ ; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

1. The amendment filed 2/9/96 (Paper No. 14) has been entered. Claims 4, 8, 27 and 39 have been cancelled. Claims 1-3, 5-7, 9-26, 28-38 and 40-56 remain and are pending in the instant application.

2. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to provide an adequate written description of the invention and failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure for the reasons of record advanced in the preceding office action, Paper No. 11, and as addressed below in the restatement of the grounds for rejection. Applicants' arguments filed 2/9/96 (Paper No. 14) have been fully considered but they are not deemed persuasive.

Applicants' arguments concerning the enablement the claims which read on a method of immunizing vertebrates against influenza with DNA encoding the H1 or H7 hemagglutinins is deemed persuasive because applicants were able to demonstrate a protective immune response in three animal models. However, the

breadth of the claims is not commensurate in scope with the disclosure provided in the specification.

Applicants have not enabled a method of immunizing vertebrates against any infectious agent. As discussed in the previous office action, there is no appropriate animal model which can reasonably predict a successful outcome in the case of HIV. On page 8 of applicants' response (Paper No. 14), the rhesus macaque is alleged to be an appropriate predictive model as evidenced by *Almond et al* [Lancet, 345:1342-1344 (1995)]. However, *Almond et al* merely states that "infection of macques with simian immunodeficiency virus (SIV) is **a model** for HIV infection in man." This doesn't mean that rhesus macaques are a good model for HIV infection. Clearly, the sentiment in the art is that there doesn't yet exist an animal model which can reasonably predict a successful outcome when immunizing against HIV. Furthermore, the declaration under 37 C.F.R. 1.132 of Dr. Harriet L. Robinson, outlining an experiment performed with rhesus macques, states that "[t]he DNA immunizations did not prevent infection or protect against CD4+ cell loss. Long term chronic levels of infection were similar in the vaccinated and control animals." Therefore, it is not clear why applicants feel that they have enabled a method which protects from the disease caused by HIV or SIV.

Consequently, the specification remains non-enabling for the claims which read on a method of protecting against disease caused by HIV or SIV, and for the claims which read on protecting a vertebrate with any antigen from any and all infectious agents.

3. Claims 1-3, 5-7, 9-26, 28-38 and 40-56 stand rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

4. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

5. Claims 1-3, 5-7, 10-14, 16-22, 24-26, 29-38, 41-49, and 51-56 are rejected under 35 U.S.C. § 103 as being unpatentable over *Felgner* (WO 90/11092) in view of *Hunt et al* [Journal of Virology, 62(8):3014-3019 (1988)].

The teachings of *Felgner* are described in the previous office action. As stated in applicants' reponse (Paper No. 14), *Felgner* fails to enable a protective immune response against influenza. However, *Hunt et al* describes a method of immunizing with the gene encoding influenza virus hemagglutinin H7 in which a protective immune reponse was achieved.

In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA) 1969. In this case, it would have been obvious to one of ordinary skill in the art to use the gene encoding influenza virus hemagglutinin H7 of *Hunt et al* in the plasmid vector of *Felgner* with a reasonable expectation of eliciting a protective immune response since the vector of *Felgner* could produce sufficient levels of protein *in vivo* to produce such a response. One would have been

motivated to make this modification since it would reduce the chance of causing tumors *in vivo* caused by retroviral vectors.

6. Claims 15 and 23 are rejected under 35 U.S.C. § 103 as being unpatentable over *Felgner* (WO 90/11092) and *Hunt et al* [Journal of Virology, 62(8):3014-3019 (1988)], further in view of *Tang* [Nature, 356:152-154 (1992)].

Felgner and *Hunt et al* teach a method for eliciting a protective immune response against influenza as described the previous 103 rejection. However, *Felgner* and *Hunt et al* fail to teach the use of a gene gun or microsphere encapsulation to deliver the DNA transcription unit.

Tang teaches a method of immunizing with DNA by delivering DNA-coated gold microprojectiles directly into cells of a living animal.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the methods described by *Felgner* and *Hunt et al* with the delivery mechansim of *Tang*, due to the simplicity with which the DNA can be delivered to the animal, with the expectation of elicting a more potent immune response demonstrated by the gene gun mechanism.

7. Claims 9, 28, 40, 50 are rejected under 35 U.S.C. § 103 as being unpatentable over *Felgner* (WO 90/11092) and *Hunt et al* [Journal of Virology, 62(8):3014-3019 (1988)], further in view of *Haynes* (WO 93/17706).

Felgner and *Hunt et al* teach a method of immunization using DNA transcription units as outlined in first 103 rejection of this office action. However, they fail to teach an immune response against a simian immunodeficiency virus antigen.

Haynes teaches a method of immunizing with a genetic construction encoding antigenic determinants of an immunodeficiency virus, specifically SIV and HIV (page 9, lines 28-29).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the methods described by *Felgner* and *Hunt et al* with the genes encoding the simian immunodeficiency virus described by *Haynes*, recognizing the urgent need for a vaccine against immunodeficiency viruses.

8. The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re*

Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel,* 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum,* 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi,* 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman,* 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-7, 11-26, 30-38, 42-43 and 52-56 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 7-14 and 17-24 of copending application Serial No. 08/009,833. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both directed toward immunization against influenza virus with a DNA vaccine.

This is a *provisional* obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Applicant's amendment which recites a protective immune response necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

11. Any prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Curtis Hogue, Jr. whose telephone number is (703) 308-1083. The examiner can normally be reached on Monday-Friday from 7:30 a.m. to 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jackie Stone, can be reached on (703) 308-3153. The fax phone number for this Group is (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

JACQUELINE M. STONE
SUPERVISORY PATENT EXAMINER
GROUP 1800

D. Curtis Hogue, Jr.

July 29, 1996